

Evaluation and comparison of stability and reliability of CBC parameters determined by using automatic Celltac G MEK-9100 hematology analyzer during extended storage at 4°C

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Introduction: Sample stability is necessary for the maintenance of the quality for the final results obtained at different storage time intervals during CBC analysis. In our present study, we have evaluated the stability of various CBC parameters of blood samples stored in K2-EDTA (BD) vials at 4°C (extended storage time: 10 days).

Materials & Methods: Blood sample (2.5 ml) was drawn directly in K2-EDTA vials. Measurements were done by using MEK-9100 hematology analyzer at regular intervals over an extended period up to 246 h (10 days). Significant differences were analyzed by paired student's t-test. Mean percent differences of the all intervals were compared with baseline means.

Results: Among CBC parameters, WBC count was stable for up to 126 h, RBC and HGB levels were statistically

stable for up to 186 h and 90 h. No significant changes were observed in NE, LY, MO, EO and BA for up to 42 h, 42 h, 66 h, 66 h, and 6 h respectively. PLT counts were stable for 6 h. Furthermore, results of HCT, MCV, MCH, MCHC, RDW-CV, RDW-S, PCT and MPV were statistically stable for upto 54 h, 42 h, 18 h, 30 h, 42 h, 30 h, 6 h and 6 h respectively.

Conclusion: Estimation of RBC, WBC and HGB were qualitatively reliable ~186 h, 126 h and 90 h respectively. However, most parameters of CBC were unchanged ~48 h except for the PLT (6 h). To avoid changes in few parameters, such as MPV, basophiles, it is best to store the sample at 4°C if any delay is anticipated.

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